

Message Text

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ACTION EB-08

INFO OCT-01 ARA-10 ISO-00 IO-13 PA-02 PRS-01 NSF-02
AID-05 CEA-01 CIAE-00 COME-00 DODE-00 FPC-01 H-02
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USIA-15 OES-06 SP-02 SS-15 STR-04 TRSE-00 ACDA-10
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FM AMEMBASSY BRASILIA
TO SECSTATE WASHDC 0939
INFO USERDA HQ WASHDC
AMEMBASSY BUENOS AIRES
AMEMBASSY BONN
AMCONSUL SAO PAULO
AMCONSUL RIO DE JANEIRO

UNCLAS BRASILIA 2705

E.O. 11652: N/A

TAGS: ENRG TECH BR

SUBJECT: NATIONAL NUCLEAR TECHNOLOGY INITIATIVES

REF: BRASILIA 2393

1. SUMMARY: SCIENTISTS OUTLINE PROPOSAL FOR NATIONAL
NUCLEAR REACTOR PROTOTYPE. STUDY OF ENRICHMENT PROJECT UNDERWAY.
END SUMMARY.

2. ONE POSSIBILITY FOR NATIONAL (OR PERHAPS BETTER PAULISTA)
VERSION OF REACTOR PROTOTYPE HAS BEEN RELEASED THROUGH POLYTECHNIC
SCHOOL OF UNIVERSITY OF SAO PAULO AND DESCRIBED IN "O ESTADO
DE SAO PAULO". PROJECT WAS DEVELOPED BY PROF. OSNI BALTAZAR,
ASSISTED BY JOSE GOLDEMBERG (PRESIDENT OF PHYSICS SOCIETY),
POLYTECHNIC SCHOOL OF UNIV OF PARIS, INSTITUTE FOR RADIOACTIVE
RESEARCH OF BELO HORIZONTE (THORIUM GROUP - IPQR), FEDERAL
UNIV OF RIO DE JANEIRO, BRAZILIAN CENTER FOR PROGRESS OF PHYSICS
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(CBPF), AND INSTITUTE OF PHYSICS OF UNIV SAO PAULO.
CONCEPT SELECTED WAS NATURAL URANIUM METALLIC FUEL
(APPROX 60 TONS), GRAPHITE MODERATOR, PRESSURIZED HELIUM
COOLANT AND HEAT TRANSFER MEDIUM (OPERATION LIMITED
TO 5000. C BY MATERIALS PROBLEMS), AND 30MW ELECTRIC
(110 MW THERMAL). PROJECT WAS ESTIMATED TO COST \$150
MILLION OVER TEN YEARS. CONCEPT SELECTION CRITERIA INCLUDED:

(A) PROJECT COULD BE NATIONAL IN SCIENCE, TECHNOLOGY, HUMAN RESOURCE REQUIREMENTS, MATERIALS, AND CONSTRUCTION; (B) PROJECT COULD SERVE AS PROTOTYPE FOR FUTURE DEVELOPMENT LINES TO MEET BRAZILIAN NEEDS (HIGH TEMPERATURE REACTORS FOR POWER AND PROCESS HEAT, WHICH UTILIZE BRAZIL'S THORIUM RESERVES) AND ALSO FOR FUEL AND MATERIALS DEVELOPMENT; AND (C) PROJECT OUGHT TO FIT WITHIN BRAZIL'S PLANNED NUCLEAR INDUSTRY BUT NOT DUPLICATE ASPECTS COVERED BY GOB/FRG AGREEMENT.

3. PROJECT MADE ANALYSIS OF MATERIALS AND CONSTRUCTION PROBLEMS OF PROPOSED PROTOTYPE, WITH FOLLOWING CONCLUSIONS:

(A) INSTITUTE OF ATOMIC ENERGY, SAO PAULO (IEA) COULD PRODUCE 12 TONS OF NUCLEAR PARITY METALLIC URANIUM FUEL ELEMENTS REQUIRED ANNUALLY TO FUEL REACTOR.
(B) IEA COULD DEVELOP NECESSARY FUEL REPROCESSING CAPABILITY BASED ON REPROCESSING R&D ALREADY IN PROGRESS AT SHIELDED BOX-LINE LEVEL.
(C) IEA COULD PURIFY THORIUM AND PREPARE MIXED PLUTONIUM/THORIUM FUEL ELEMENTS FOR DEVELOPMENT WORK (HTGR) SYSTEM BASED ON THORIUM/PLUTONIUM STARTUP INSTEAD OF THORIUM/HIGHLY ENRICHED URANIUM.
(D) GRAPHITE OF NUCLEAR PURITY COULD BE PRODUCED EITHER BY PURIFICATION DEVELOPMENTS IN GRAPHITE ELECTRODE INDUSTRY (WHITE MARTINS S.A.) OR BY STARTING WITH "NATURAL GRAPHITE" OF ITAPECERICA, MINAS GERAIS, WHICH CONTAINS LESS THAN ONE-HALF PART PER MILLION OF BARON.
(E) PRESSURE VESSEL OF PRE-STRESSED CONCRETE WOULD BE BASED ON PAST WORK CONDUCTED UNDER IEA/GENERAL ATOMICS PROJECT.
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4. IN "JORNAL DO BRASIL", GRADUATE ENGINEERING PROGRAM (COPPE) AT FEDERAL UNIV RIO DE JANEIRO STATED THAT IT ALREADY IS DEVELOPING PROJECT TO CONSTRUCT ULTRACENTRIFUGES TO BE USED, IN CASE FOLLOW-ON DEVELOPS FROM CONTRACT FOR CENTRIFUGE CONSTRUCTION STUDY SIGNED WITH NUCLEAR ENERGY COMMISSION (CNEN), FOR URANIUM ENRICHMENT WITH NATIONAL TECHNOLOGY. COPPE DIRECTOR NEVES MONTEIRO SAID RESEARCH TEAM OF NUCLEAR ENGINEERING PROGRAM HAS CAPABILITY TO PREPARE COMPLETE URANIUM ENRICHMENT PROJECT IN 2 TO 3 YEARS WITHOUT TRANSFER OF FOREIGN TECHNOLOGY. MONTEIRO, WHO HAS BEEN DIRECTING COPPE FOR FOUR MONTHS AFTER RETURNING FROM YEAR IN FRG, SAID DECISION TO PRODUCE ENRICHED URANIUM DEPENDS ONLY ON CNEN AND ITS SUPPORT TO PROJECT.
CRIMMINS

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Message Attributes

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Disposition Approved on Date:
Disposition Case Number: n/a
Disposition Comment:
Disposition Date: 01-Jan-1960 12:00:00 am
Disposition Event:
Disposition History: n/a
Disposition Reason:
Disposition Remarks:
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